

Fig 1 - Confocal Microscopy Images of Wetted Particles

Particles Cast in Liq. N2 -- No.1

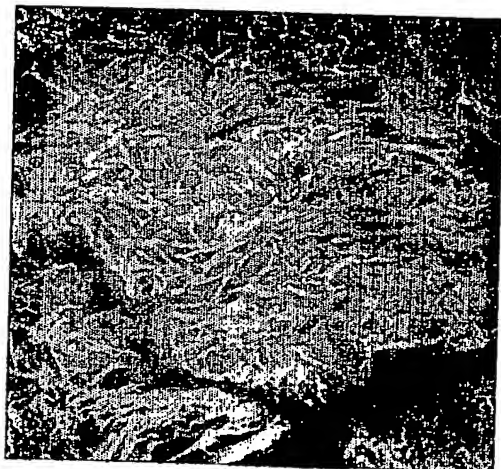
Particles Cast in Pentane @ -15C -- No. 4

Particles Cast in Air @ -20C -- No. 7

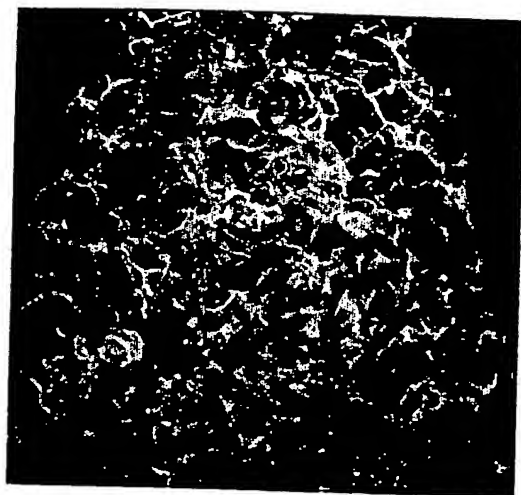
9 Step Wetting Procedure



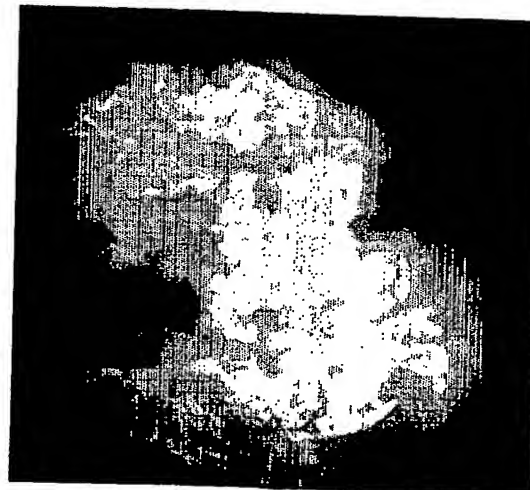
(a)



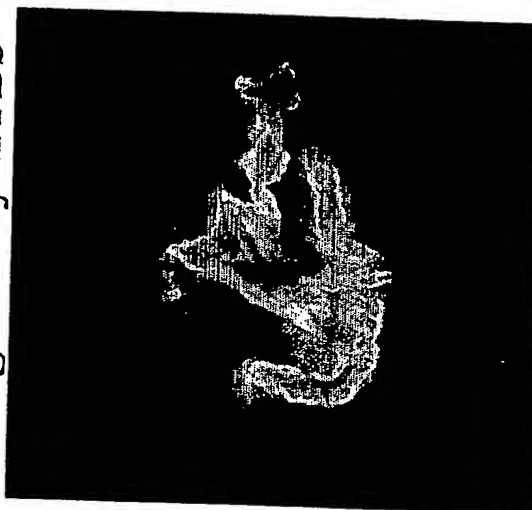
(b)



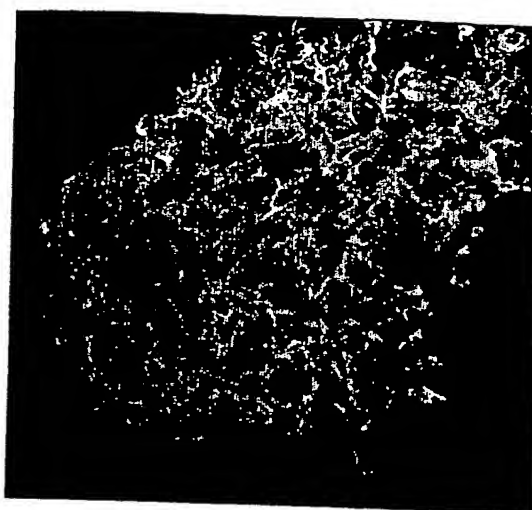
(c)



(d)



(e)



(f)

Wetting Directly in PBS

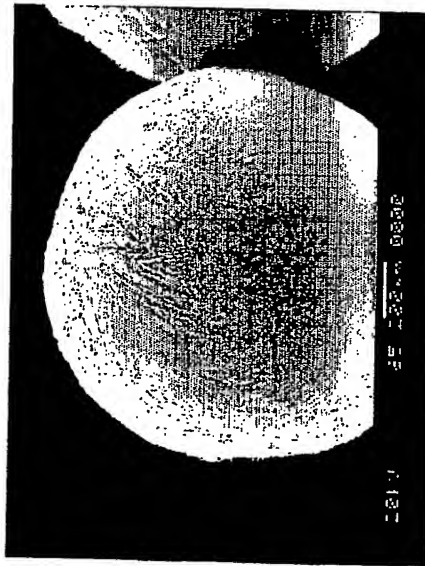
640u 640u 640u

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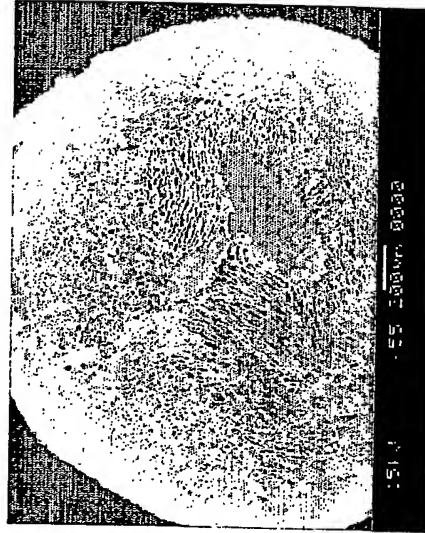
## Figure 2

### Dry Particulate Collagen Sponges

Particles Cast in Liq. N<sub>2</sub> - No. 1



Particles Cast in Pentane @ -15C - No. 4



Particles Cast in Air @ -20C - No. 7

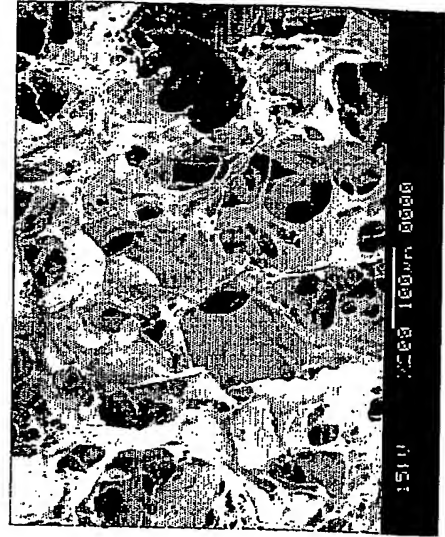
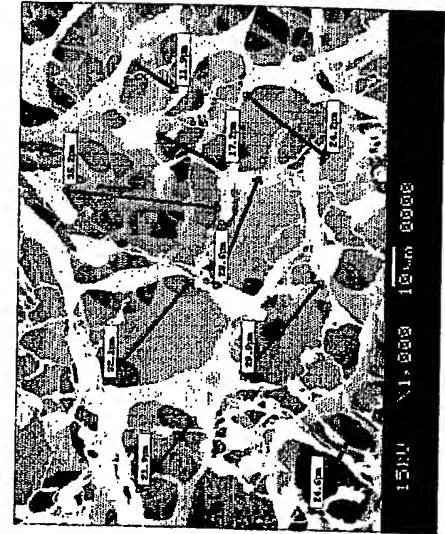
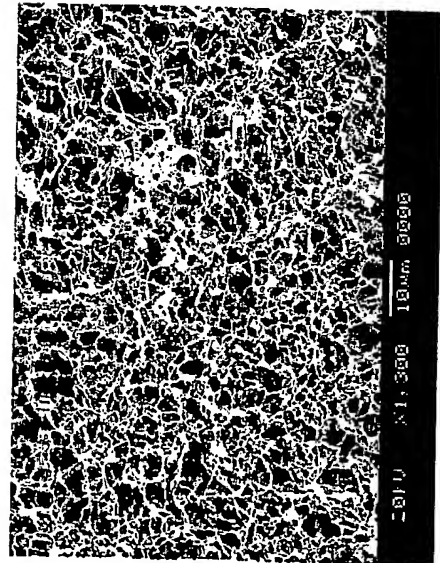
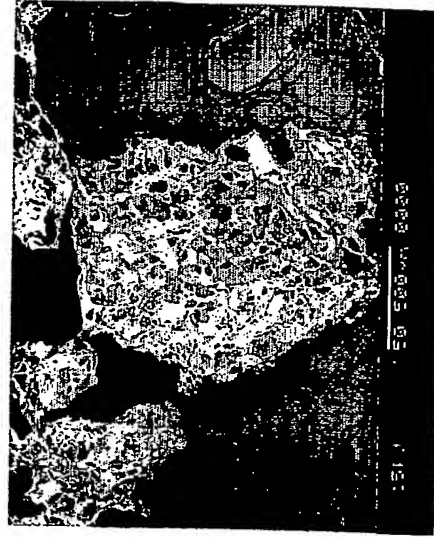


Fig 3

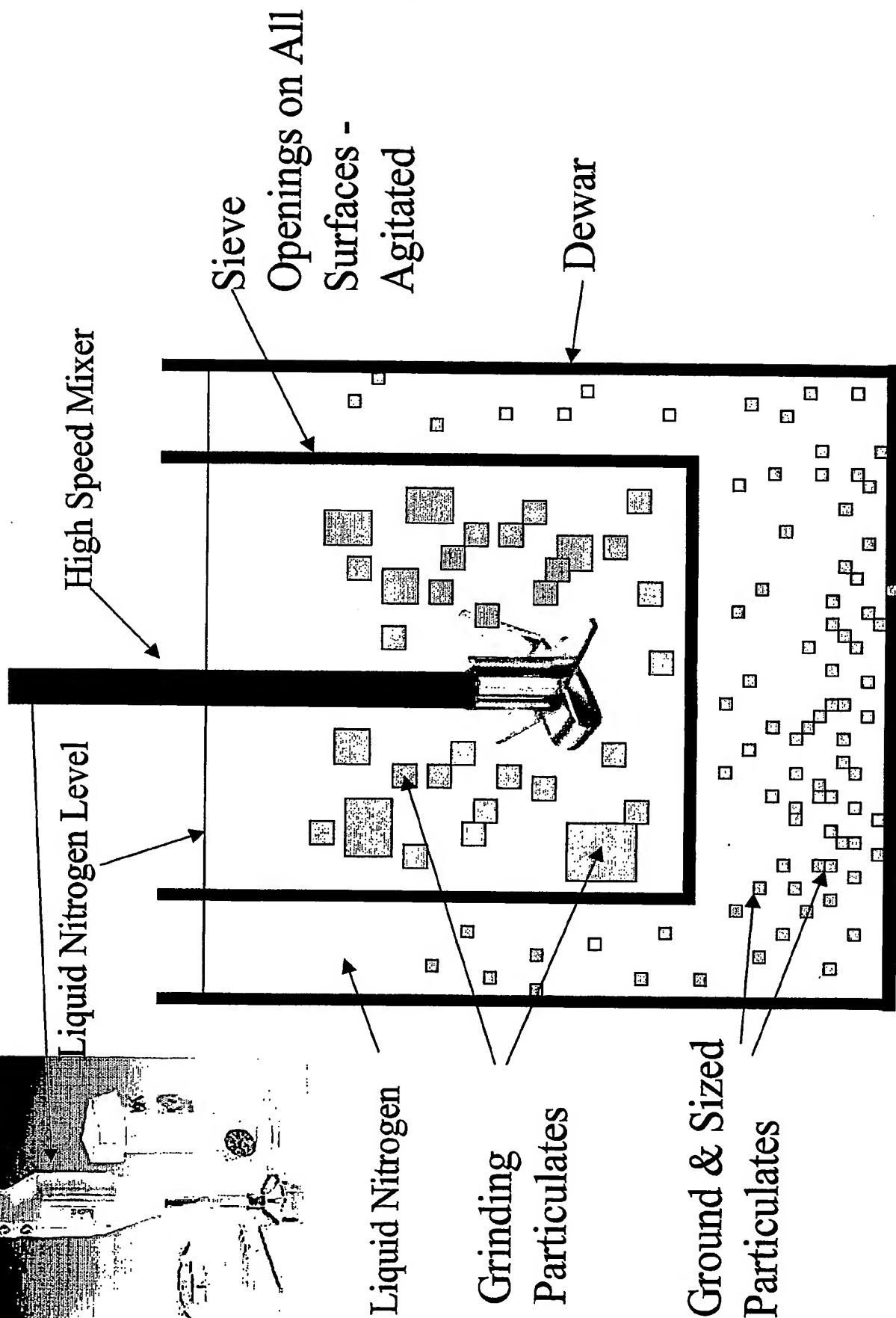
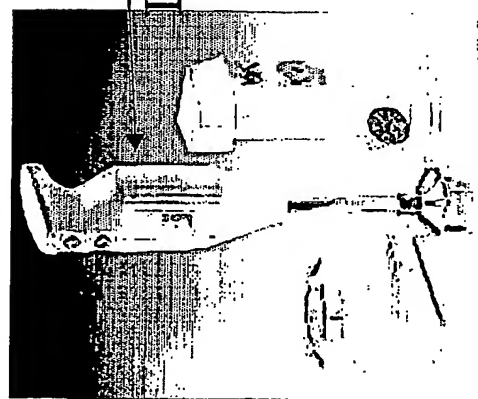
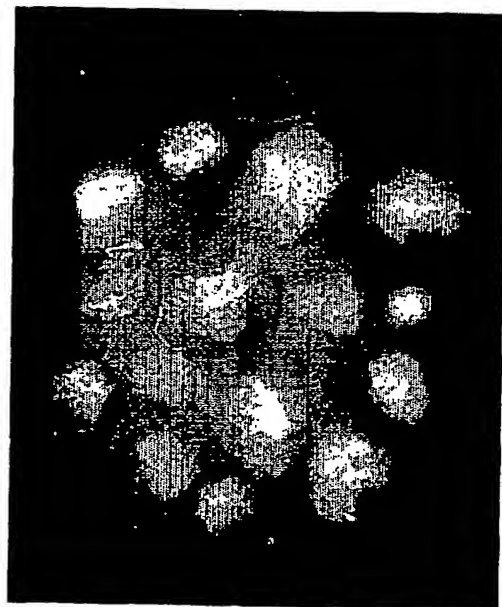


Figure 4  
Effects of Wetting Procedure on Sample No. 7

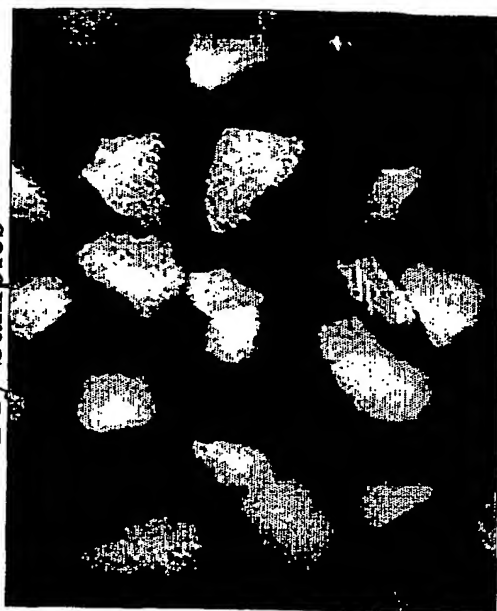
2 Step Wetting Process



wet



Dry Samples



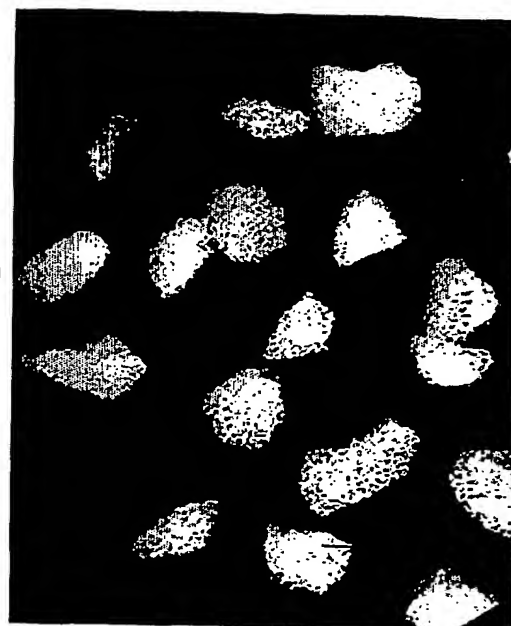
Direct Wetting in PBS



wet



Dry Samples

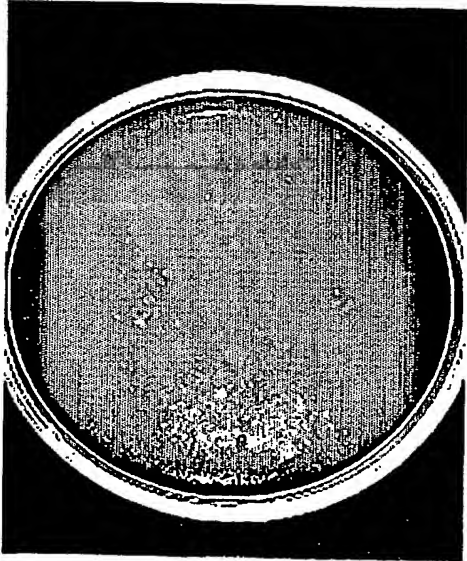


15 mm

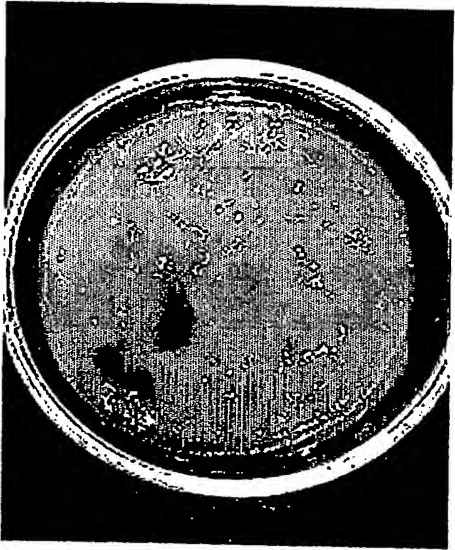


Fig. 5  
Effects of Wetting Procedure on Sponge Sheets

2 Step Process



Direct Wetting in 70% ethanol



2"

Direct Wetting in PBS

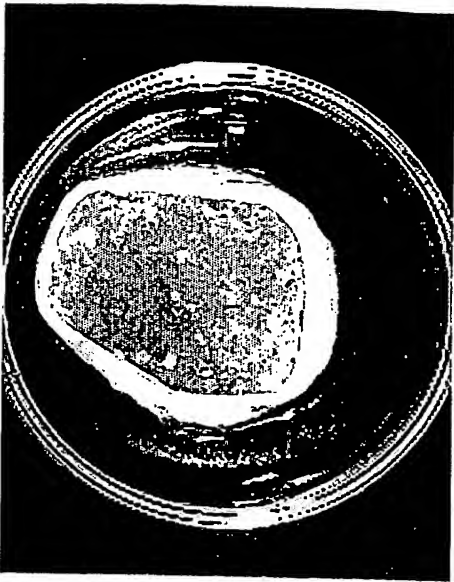


Fig 6  
Proliferation of Porcine Fibroblasts on Collagen Particles

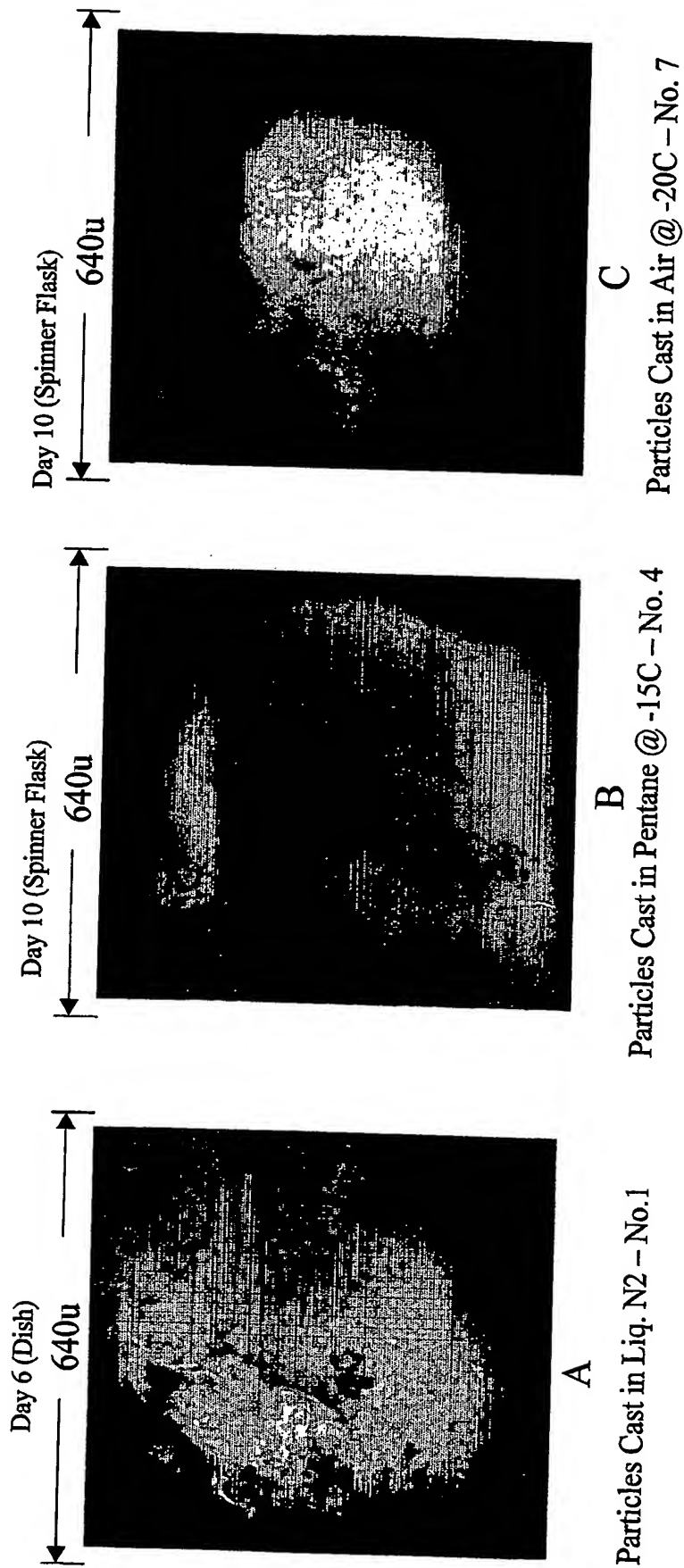


Figure 7

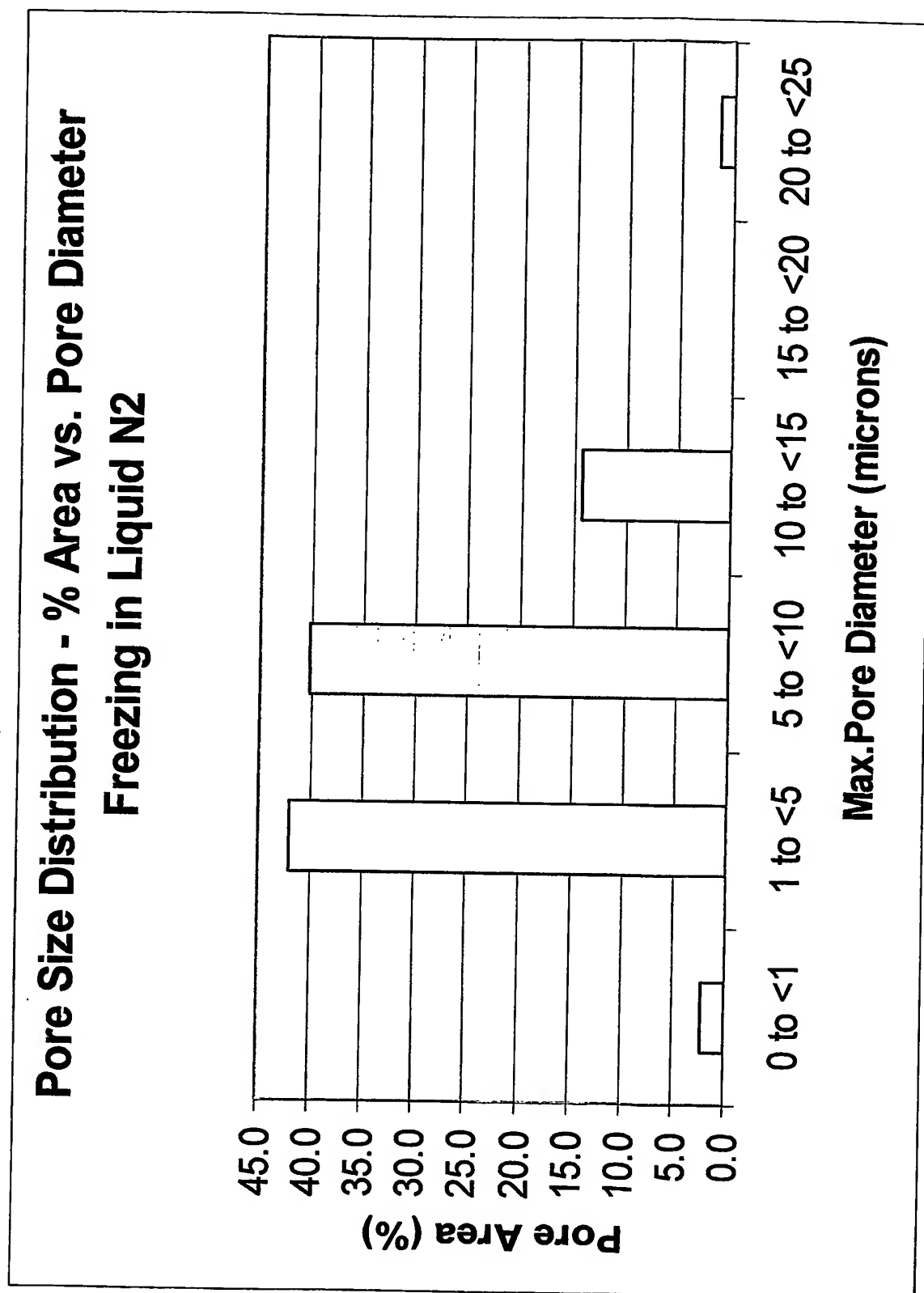


Figure 8

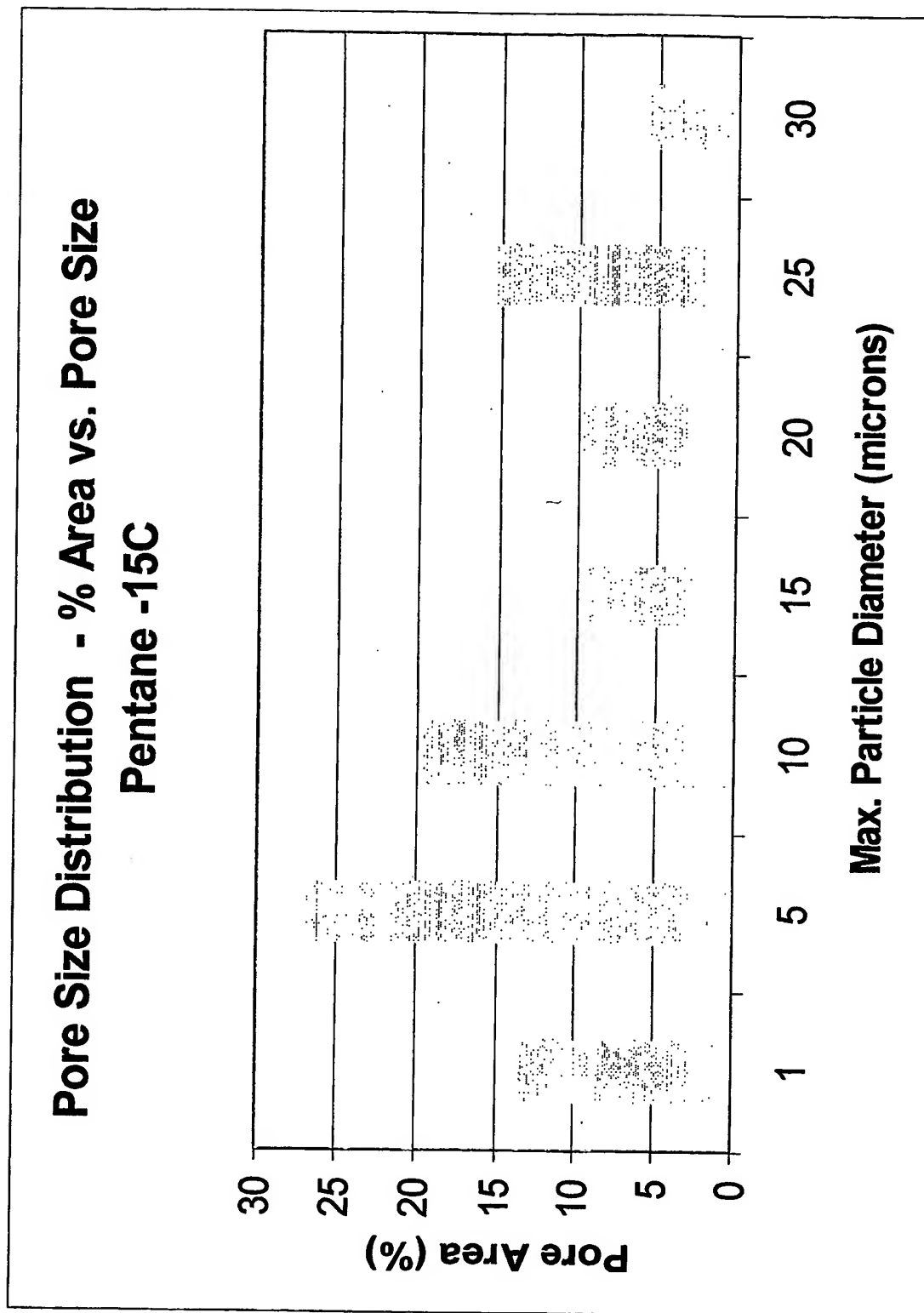




Figure 9

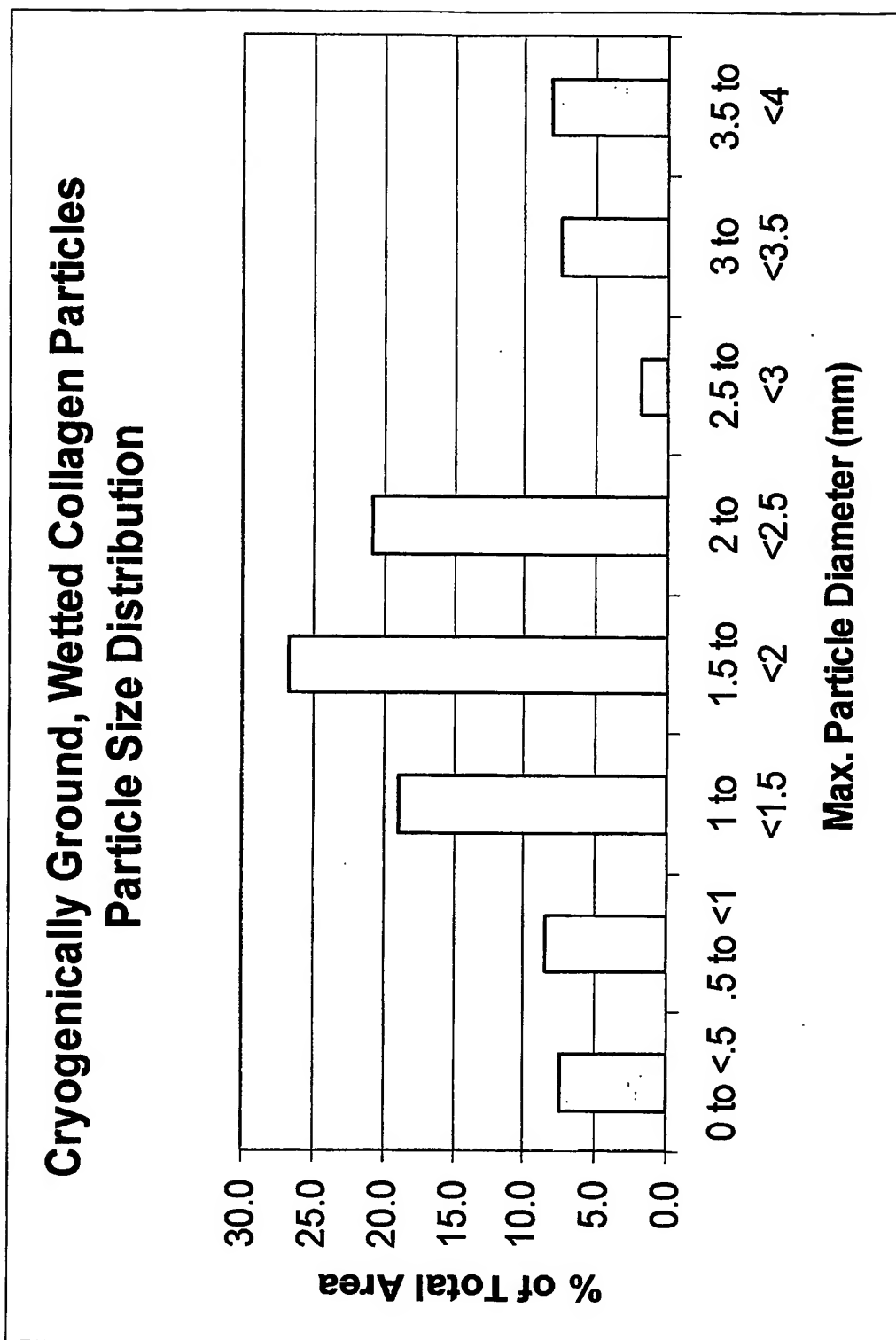


Fig. 10  
Porcine Fibroblasts Cultured in vitro  
On Porous Collagen Spheres  
Pentane Spheres

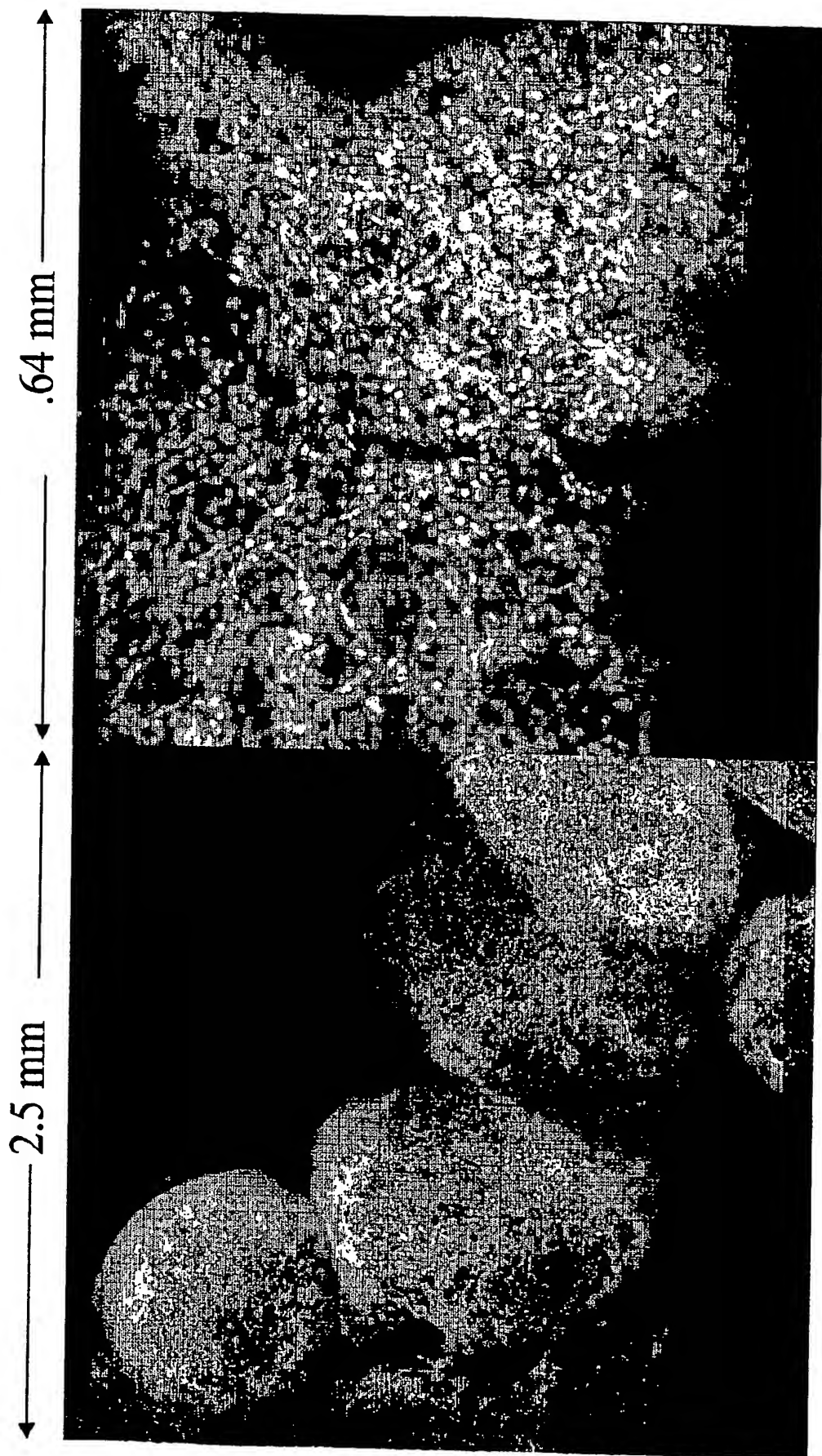


Figure 11  
Continuous Process for Producing  
Sheet-Like Tissue Matrix

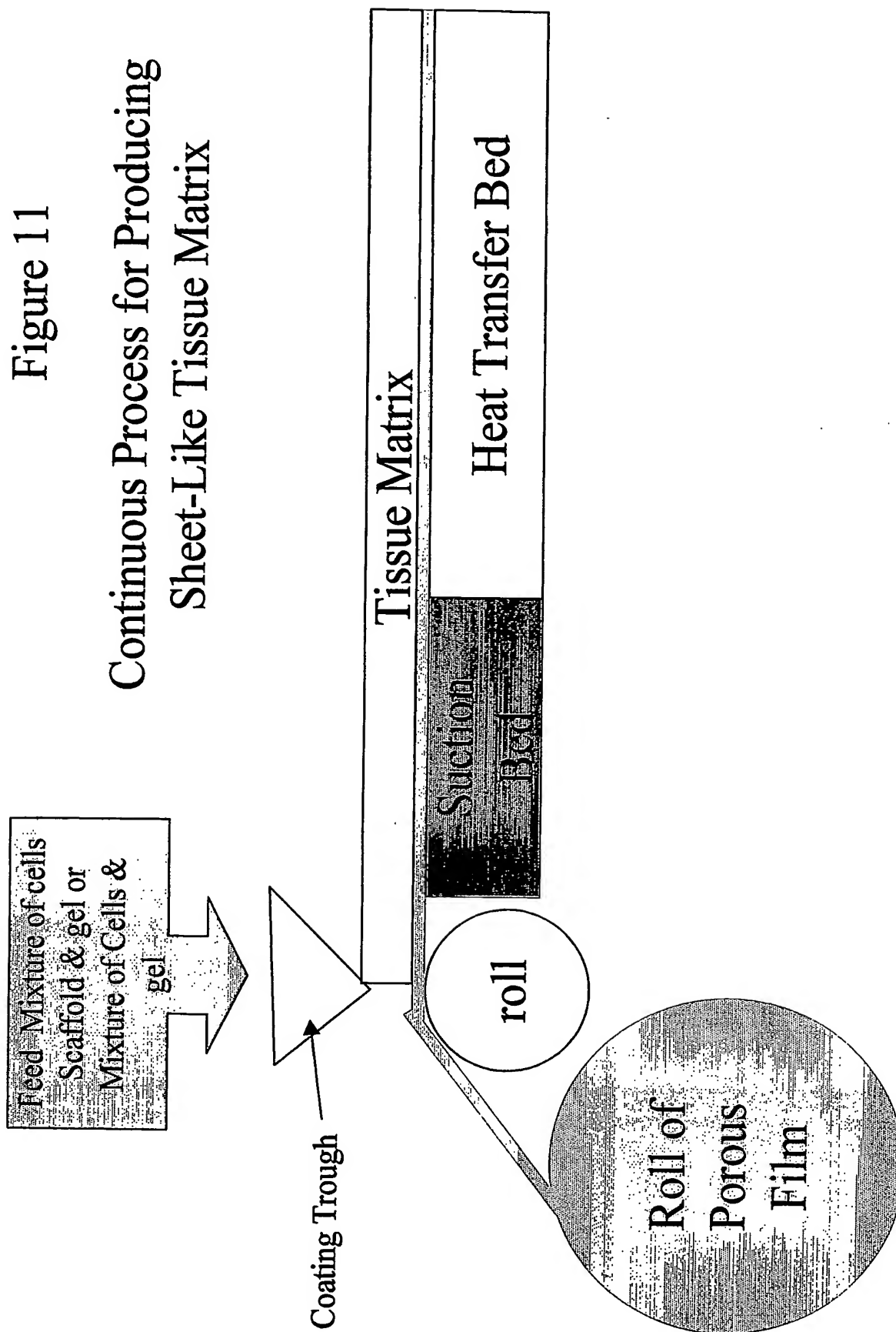
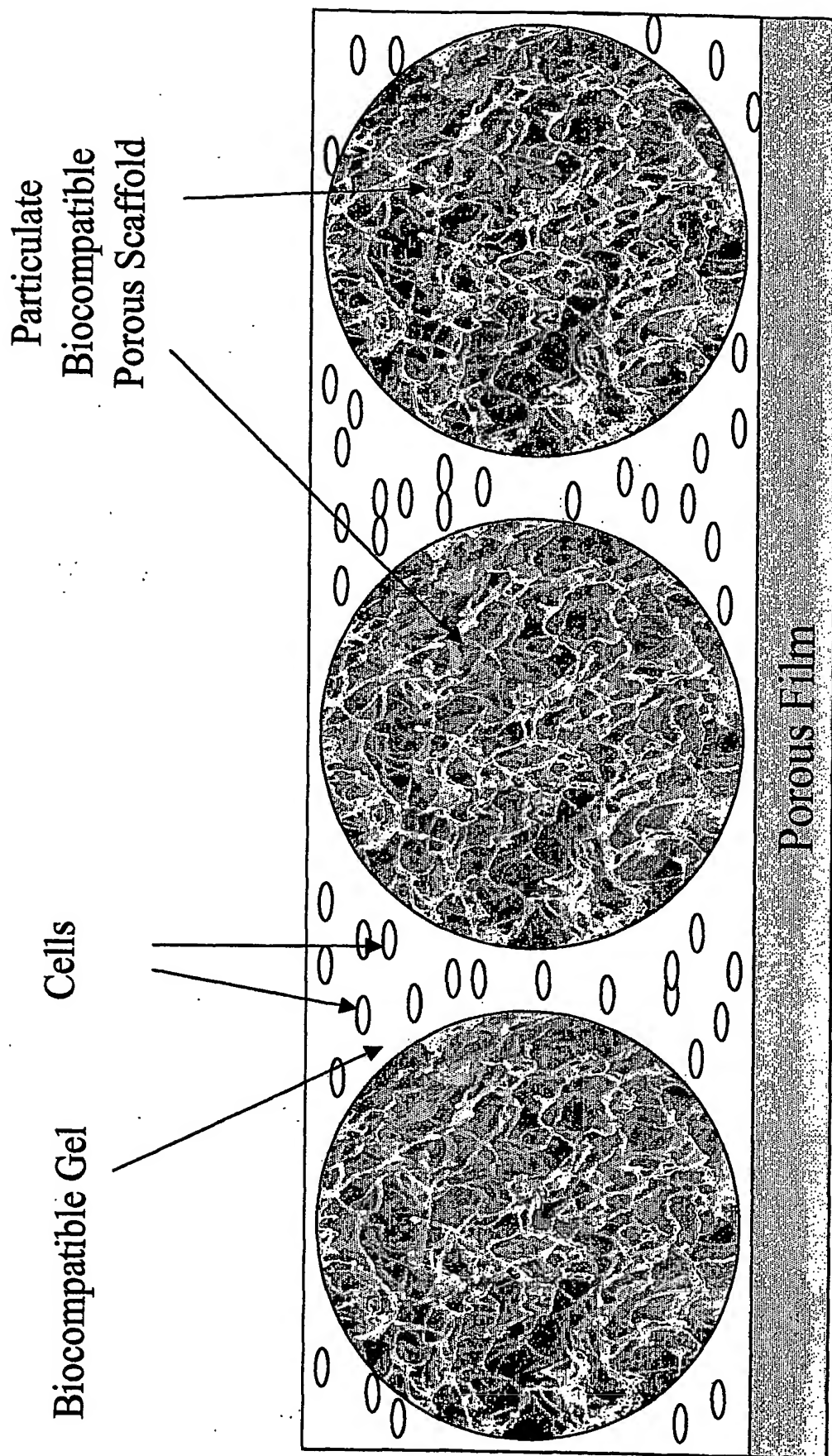


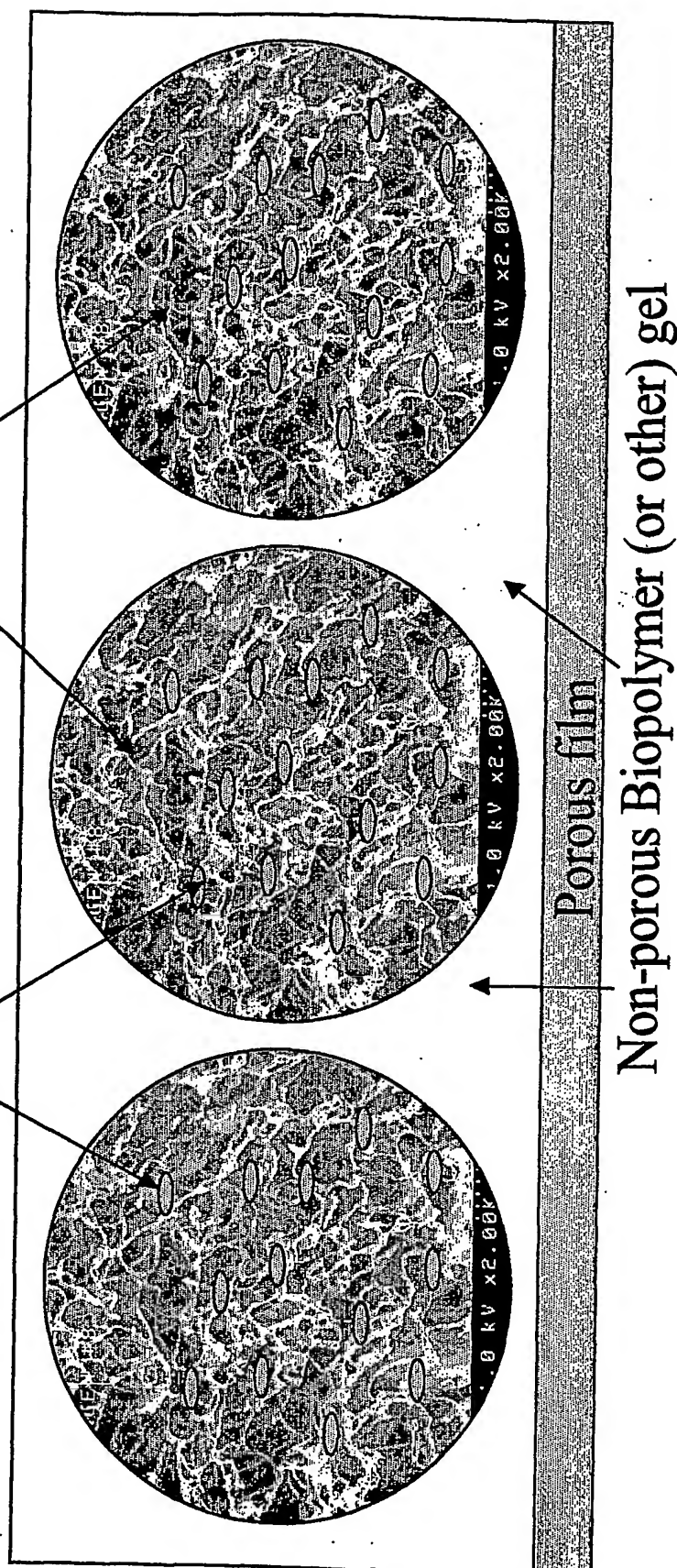
Figure 12  
Particulate Biopolymer Scaffold Dispersed in a Biopolymer Gel  
Seeded with Cells



**Figure 13**  
Dispersion of Particulate, Biopolymer Scaffold Particles,  
Filled with Nutrient Solution, in a Biopolymer Gel  
Cells Seeded in Scaffold

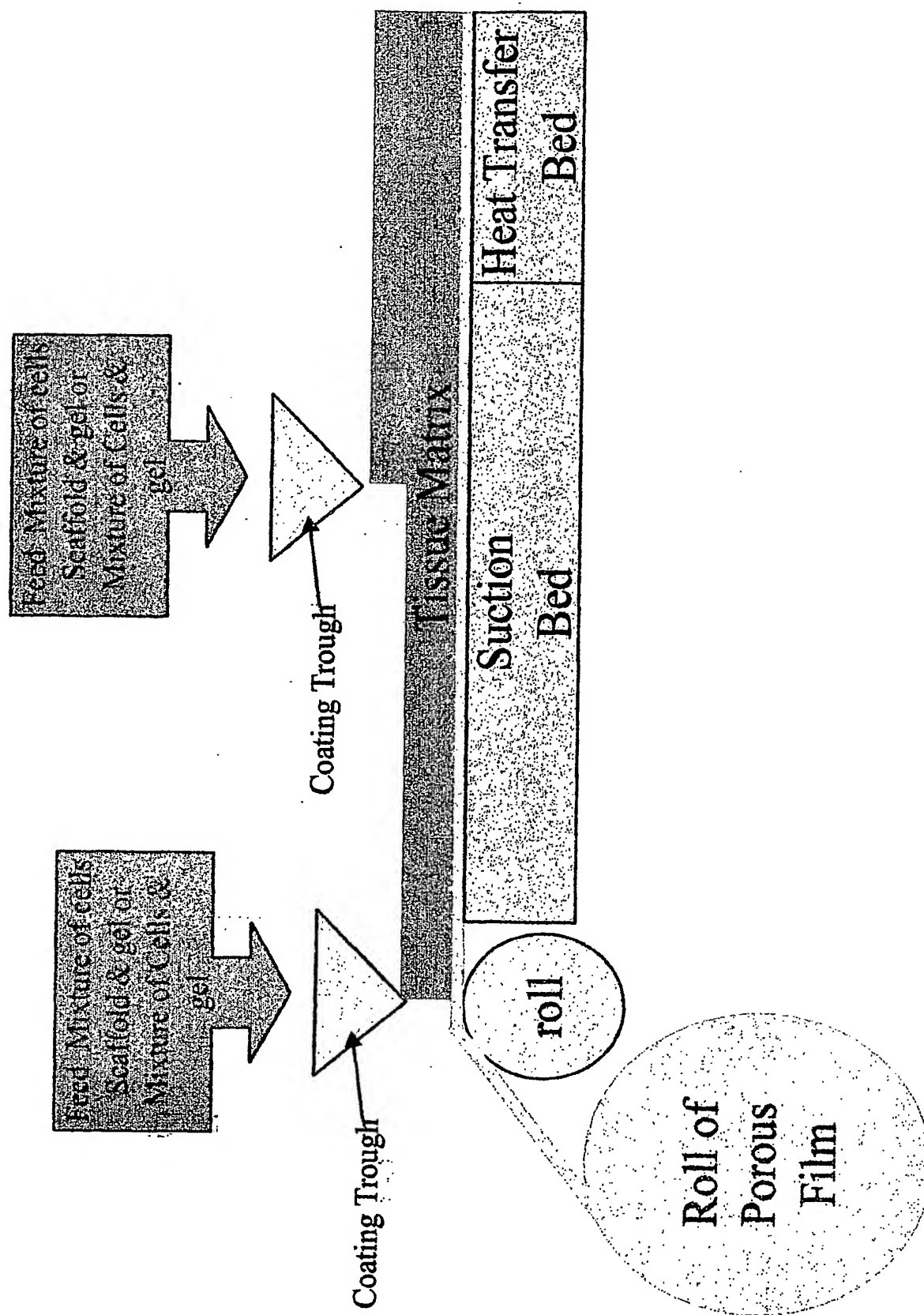
Porous Biopolymer Scaffold  
filled with nutrient

cells



Continuous Process for Producing  
Sheet-Like Tissue Matrix

Figure 14





# Multicellular Composite

Figure 15

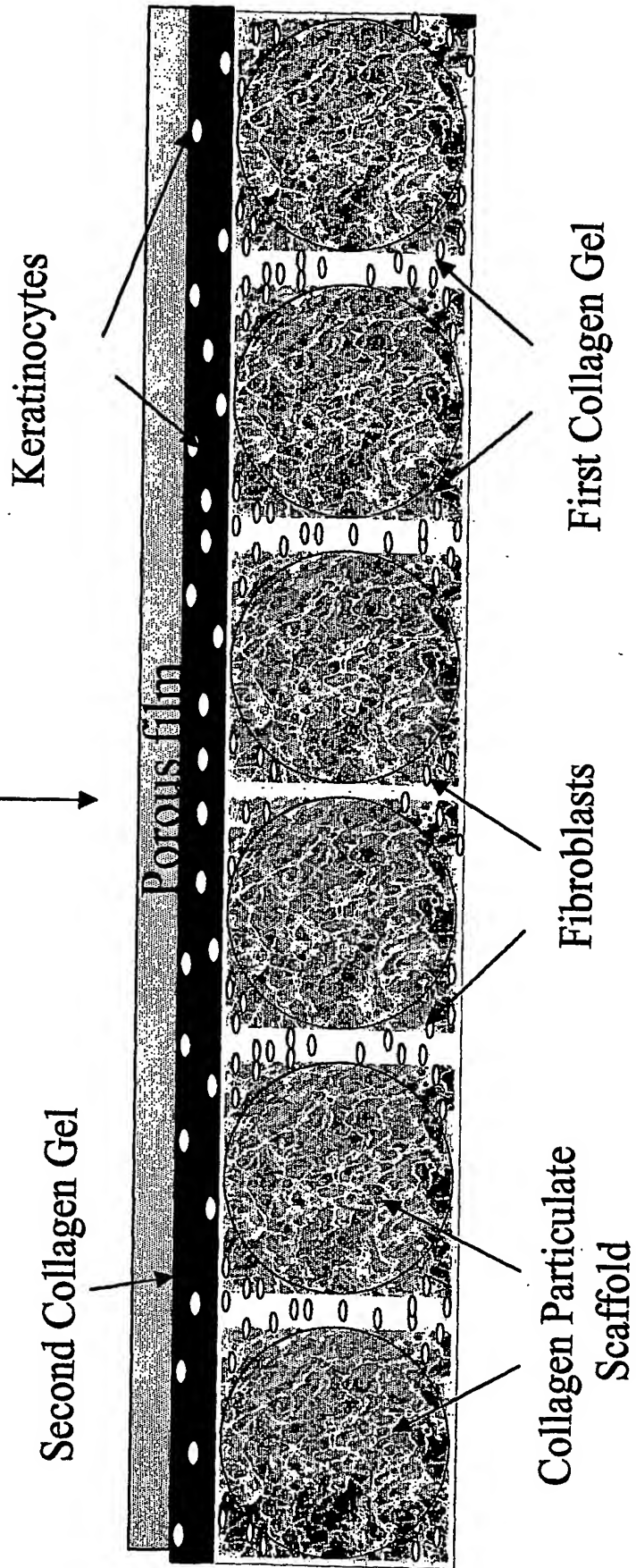
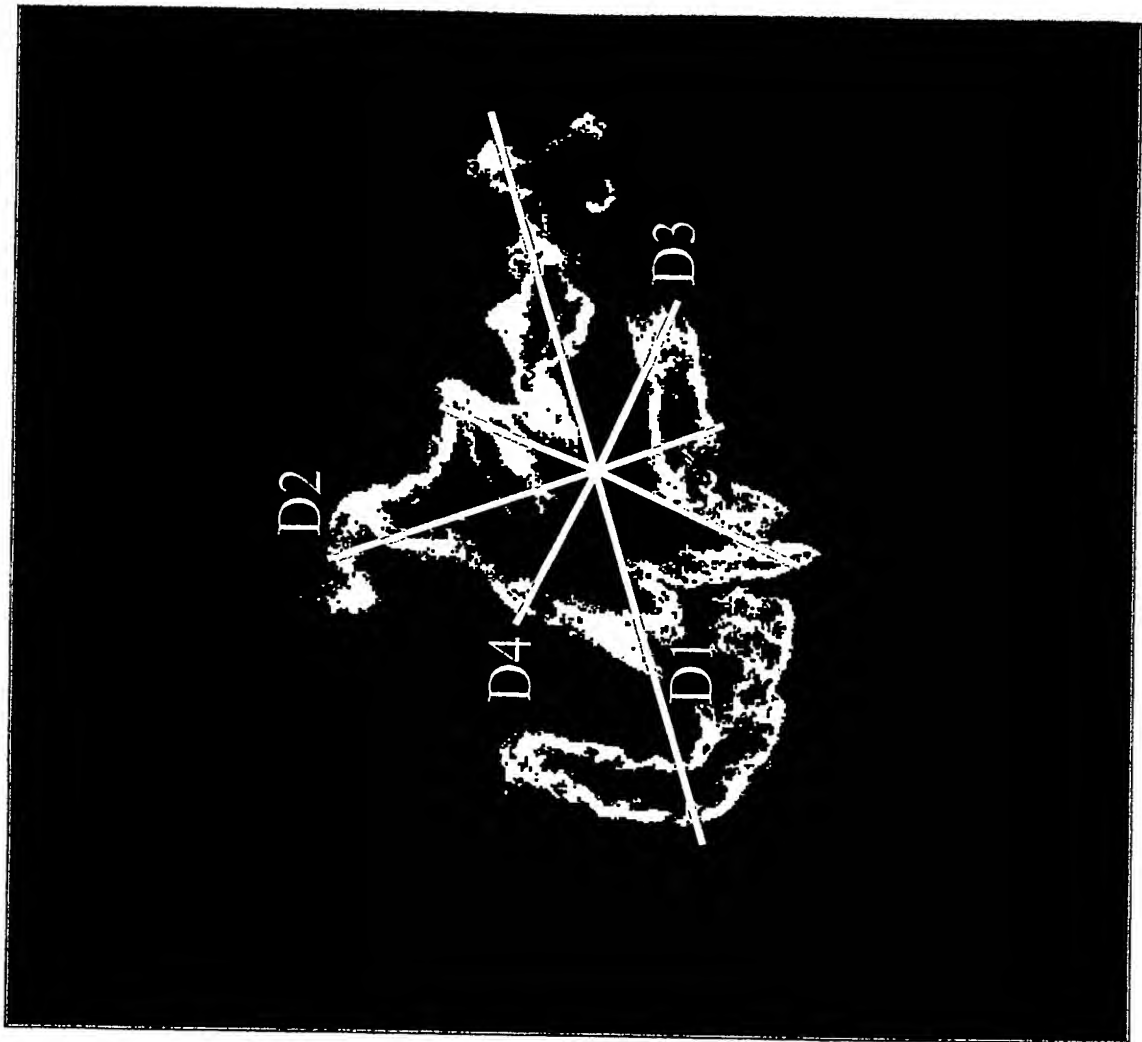


Figure 16



$$\begin{aligned} D1 &= 10.5 \\ D2 &= 5.5 \\ D3 &= 5.3 \\ D4 &= 5 \\ D_{avg} &= 6.6 \end{aligned}$$



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